



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,309	10/06/2003	Mitsue Miyazaki	160-391	4146

23117	7590	10/09/2007
NIXON & VANDERHYE, PC		
901 NORTH GLEBE ROAD, 11TH FLOOR		
ARLINGTON, VA 22203		

EXAMINER	
KISH, JAMES M	

ART UNIT	PAPER NUMBER
3737	

MAIL DATE	DELIVERY MODE
10/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/678,309

Applicant(s)

MIYAZAKI ET AL.

Examiner

James Kish

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed November 2, 2006 have been fully considered but they are not persuasive.

Applicant has amended the claims to clarify that non-contrast magnetic resonance angiography (MRA) is being performed. Applicant argues that Licato fails to mention MRA as well as contrast agents. The Examiner points out that the added limitations to the apparatus claims are not further limiting on the apparatus itself. Whether or not the patient being scanned is injected with a contrast agent has no effect on the specifics of the apparatus. Furthermore, if Licato required a contrast agent to be injected it would be clearly stated in the specification. Since it is not mentioned it is safe to assume that non-contrast magnetic resonance imaging is entirely within the scope of the invention. The fact that the images are of the heart, blood vessels, blood flow, etc. (i.e. those being referred to as MRA images) also has no bearing on the specifics of the apparatus. Regarding the same arguments, except in light of the method claims, the scope of these method claims has changed and therefore, Miyazaki has been incorporated to provide for the deficiencies associated with this change of scope.

Applicant also argues that Miyazaki does not provide for flow pulses in the phase encoding direction. The Examiner respectfully disagrees. Paragraph 90 states, "...the phase-encode direction is positively made to agree with the running direction (i.e., body-axis direction) of a blood flow such as the aorta."

Art Unit: 3737

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Licato, et al (US 7047062). Licato discloses an MRI system including an RF coil and gradient magnetic field coils (figure 1) as well as a pulse generator module (element 121) and a CPU (element 119) that controls the gradient magnetic field coils. The gradient magnetic field sequences may be “applied on any physical gradient axes Gx, Gy, Gz, or any linear combination thereof, depending on the selected orientation for the slice. The slice select pulse includes, but is not limited to, a slice select pulse, a rephaser pulse, and a killer or dephaser pulse”, the phase encoding pulse may be a phase encoding pulse or a phase rewinder pulse, and the readout pulse may be a rephaser pulse, a readout pulse, or a killer or dephaser pulse (col 6, lines 43-59). These pulses may be used for velocity or flow compensation (col 1, line 56).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3737

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Licato in view of Miyazaki, et al (2002/0032376).). Licato discloses an MRI system including an RF coil and gradient magnetic field coils (figure 1) as well as a pulse generator module (element 121) and a CPU (element 119) that controls the gradient magnetic field coils. The gradient magnetic field sequences may be "applied on any physical gradient axes Gx, Gy, Gz, or any linear combination thereof, depending on the selected orientation for the slice. The slice select pulse includes, but is not limited to, a slice select pulse, a rephaser pulse, and a killer or dephaser pulse", the phase encoding pulse may be a phase encoding pulse or a phase rewinder pulse, and the readout pulse may be a prephaser pulse, a readout pulse, or a killer or dephaser pulse (col 6, lines 43-59). These pulses may be used for velocity or flow compensation (col 1, line 56).

Licato further discloses that the integral of gradient amplitude over the duration of the gradient pulse is an important factor in generation of a field pulse and should be a factor that is considered (col 1, lines 53-54). Licato discloses distinction between rephrase pulse and diphase pulse and selecting appropriate pulses to obtain desired results (col 5, lines 34-67).

However, Licato fails to disclose the use of a prep scan. Miyazaki discloses a system for MR imaging including the use of a prep scan to determine an optimal condition of imaging parameters (abstract). A prep scan is followed by an imaging scan (figure 2) and determines a condition of the pulses on the basis of the results of the

Art Unit: 3737

scan, such as the timing of the scan and other imaging parameters (figure 6, step 21). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Licato in light of the teachings in the reference by Miyazaki to include a preparatory scan to obtain optimal parameters for the subsequent imaging scan to provide an improved image.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Kish whose telephone number is 571-272-5554. The examiner can normally be reached on 8:30 - 5:00 ~ Mon. - Fri..

Art Unit: 3737

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMK


BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700